**Genetics Unit Review pt 2**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Draw/define and identify the phases of mitosis -

|  |  |  |
| --- | --- | --- |
|  | Define/Describe | Drawing/Label |
| Interphase |  |  |
| Prophase |  |  |
| Metaphase |  |  |
| Anaphase |  |  |
| Telophase |  |  |
| Cytokinesis |  |  |

1. **Meiosis, mitosis, haploid, diploid, gametes, body cells, 23, 46**

A cell which undergoing division to produce 2 identical cells is undergoing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The 2 cells produced will have a full set of \_\_\_\_\_\_\_\_\_\_ number of chromosomes and be called \_\_\_\_\_\_\_\_\_\_\_\_\_\_. This means it contains \_\_\_\_\_ pair of chromosomes. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are examples of these cells.

A cell which divides to produce sex cells is undergoing \_\_\_\_\_\_\_\_\_\_\_\_\_ and will result in half the number of chromosomes and are referred to as \_\_\_\_\_\_\_\_\_\_ cells. These sex cells produced are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ . Examples are egg and sperm)

1. **Punnet square,** **heredity, hybrid, homozygous, heterozygous, genetics, carrier)**

The passing of traits from one generation to another is called. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The science of how these traits are passed on is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is used to determine the probability of outcome when two species are crossed.

The genotype of the offspring are used to determine if the organism is pure, also called \_\_\_\_\_\_\_\_\_, or a hybrid, also called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. If the organism does not have the disease, but it can pass it down it is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and must be a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. **Alleles, karyotype, pedigree, simple dominant, simple recessive**

The varying forms of a traits are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_chart will indicate if it is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_, or if it is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_ and only shows up if both parents are carriers. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can be used to identify if a child has an incorrect number of chromosomes.

1. **sex-linked, Incomplete dominance, co-dominance, dominant, recessive**

If an offspring receives the gene for widows peak it will have a widows peak . This is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ trait, because it always shows up if present. If an allele can be hidden, it is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. If two traits both show up equally, they are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. If the traits are blended, with a new phenotype appearing, with neither of the original phenotypes showing up, it is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. If it usually occurs in one sex it is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. **Explain the inheritance of the colorblind gene.**

What sex gets it from mom?

From Dad?

1. Identify the types of mutations: point, deletion, insertion,( frame shift- may be used in addition to another type of mutation)

The cat dog ran far- original The fat dog ran far- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The cad ogr anf ar-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The cla tdo gra nfa r- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Nondisjunction, monosomy, trisomy, down’s syndrome

The failure of cells to separate during meiosis causes\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ where some cells have the wrong number of chromosomes. In humans, a cell with 47 chromosomes , like in the disease \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is caused by \_\_\_\_\_\_\_\_\_\_\_\_\_. If a cell is missing a chromosome, it is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. **natural selection, artificial selection, selective breeding**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_occurs when nature selects the traits to be crossed. If a human is choosing the traits they are using \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to choose the traits and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ to produce the organism with the new trait.

1. **PCR, gel electrophoresis,** **genetic engineering,** **gene therapy,** **human genome project**, **DNA fingerprinting, recombinant.)**

In 2000, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ was completed the sequencing of our DNA for humans. If small amounts of DNA are located, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_can be used to increase the amount of DNA for testing. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is used to separate the segments of DNA by size, using an electric charge. This led to the production and use of \_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to identify paternity or criminal activity. Now that the genes have been located, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_allows us to take a piece of DNA from one organism and put it into another organism. The new DNA is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. It also allows us to treat disease with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, which adds the missing pieces of DNA.

1. **If you want to determine the following, you use (pedigree, gene map )**
   1. To determine the chances of passing on a genetic disease, you use a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   2. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is used to determine the location of alleles/genes on a chromosome.

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|  |  |  |
| --- | --- | --- |
|  | Define/Describe | Drawing/Label |
| Interphase | Period of growth before mitosis begins.  Chromosomes are duplicated. |  |
| Prophase | Duplicated chromosomes condense, spindles move to poles of cell (will pull chromosomes apart) |  |
| Metaphase | Chromosomes line up at center |  |
| Anaphase | Chromosomes separate and move to poles in cell |  |
| Telophase | Nuclear envelope forms around each set of chromosomes |  |
| Cytokinesis | Division of cytoplasm, forming 2 daughter cells |  |

1. **Meiosis, mitosis, haploid, diploid, gametes, body cells, 23, 46**

A cell which undergoing division to produce 2 identical cells is undergoing \_mitosis\_\_. The 2 cells produced will have a full set of \_46\_\_\_ number of chromosomes and be called \_\_\_diploid\_\_\_\_. This means it contains \_23\_\_ pair of chromosomes. \_\_body cells\_\_ are examples of these cells.

A cell which divides to produce sex cells is undergoing \_\_meiosis\_\_\_ and will result in half the number of chromosomes and are referred to as \_\_haploid\_\_ cells. These sex cells produced are called \_gametes\_\_\_ . Examples are egg and sperm)

1. **Punnet square,** **heredity, hybrid, homozygous, heterozygous, genetics, carrier)**

The passing of traits from one generation to another is called \_\_heredity\_\_\_. The science of how these traits are passed on is called \_\_genetics\_\_\_. A \_\_\_\_\_\_\_ **Punnet square\_\_\_\_** is used to determine the probability of outcome when two species are crossed.

The genotype of the offspring are used to determine if the organism is pure, also called \_homozygous\_, or a hybrid, also called \_\_\_\_heterozygous\_\_\_\_. If the organism does not have the disease, but it can pass it down it is a \_\_\_carrier\_\_\_ and must be a \_\_hybrid\_\_\_\_\_.

1. **Alleles, karyotype, pedigree, simple dominant, simple recessive**

The varying forms of traits are called \_\_alleles\_\_\_. A \_\_pedigree\_\_\_chart will indicate if it is \_\_\_\_\_ **simple dominant** \_\_\_, or if it is \_\_\_\_ **simple recessive** \_\_\_ and only shows up if both parents are carriers. A \_Karyotype\_\_\_ can be used to identify if a child has an incorrect number of chromosomes.

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If an offspring receives the gene for widows peak it will have a widows peak . This is a \_\_dominant\_\_ trait, because it always shows up if present. If an allele can be hidden, it is called \_\_\_recessive\_\_. If two traits both show up equally, they are called \_\_co-dominant\_. If the traits are blended, with a new phenotype appearing,, it is called \_\_incomplete dominance\_\_\_. If it usually occurs in one sex it is called \_\_sex-linked\_.

1. **Explain the inheritance of the colorblind gene.**

What sex gets it from mom? girls need to get it from both parents to be colorblind, boys will be colorblind if they get the trait from mom.

From Dad? Girls only inherit the gene from dad

1. Identify the types of mutations: point, deletion, insertion,( frame shift- may be used in addition to another type of mutation)

The cat dog ran far- original The fat dog ran far- \_\_\_point\_\_\_\_\_

The cad ogr anf ar-\_\_\_\_deletion/ frame shift \_\_\_\_ The cla tdo gra nfa r- \_insertion/ frame shift \_

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\_\_ **natural selection** \_\_\_\_occurs when nature selects the traits to be crossed. If a human is choosing the traits they are using \_\_\_\_\_\_\_\_\_ **selective breeding** \_\_\_\_to choose the traits and \_\_\_\_\_**artificial selection** \_\_\_\_ to produce the organism with the new trait.

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